Appendix 2.

Ecological Reference Worksheet

Author(s) / participant(s):   Don Ashby Jr., Bob Moorhead, Richard Spencer, Tim Henry, Ty Carter, John Hartung

Contact for lead author :   Don Ashby Jr.   **Reference site used? Yes/No**   No

Date: 5/26/2006   **MLRA:** 70 **Ecological Site:**   Limy CP-3   This _must_ be verified based on soils and climate (see Ecological Site Description). Current plant community _cannot_ be used to identify the ecological site.

Indicators	Indicator Weight
Indicators: For each indicator, describe the potential for the site. Where possible, **(1)** use numbers, **(2)** include expected range of values for above and below average years for**each** community within the reference state, when appropriate & **(3)** site data. Continue description on separate sheet.	
1. Number and extent of rills : May be present on the strongly sloping piedmont slopes associated with this site.	
2. Presence of water flow patterns: May be present on the strongly sloping piedmont slopes associated with this site.	
3. Number and height of erosional pedestals or terracettes: None	
4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground) : Bare ground will be present up to 50%. Bare patches should be less than 12 inches in diameter.	
5. Number of gullies and erosion associated with gullies: If unprotected by vegetative cover, these soils are highly susceptible to gullies and erosion associated with gullies.	
6. Extent of wind scoured, blowouts and/or depositional areas: Soil blowing hazards can be moderate on this site when these soils are unprotected by vegetative cover.	
7. Amount of litter movement (describe size and distance expected to travel) : Fine (plant material) litter movement 3-6 feet can be expected with increased bare ground and surface coble/stone.	
8. Soil surface (top few mm) resistance to erosion (stability) values are averages - most sites will show a range of values for both plant canopy and interspaces, if different): Anticipated to be 2-3 at the surface and subsurface in the interspaces and 3-4 at the surface and subsurfaces under vegetation.	
9. Soil surface structures and SOM content (include type and strength of structure, and A-horizon color and thickness for both plant canopy and interspaces, if different) : Soils are fine sandy loam to clay loams, light grey in color with the A horizon 1-2 inches in depth. Soils are well drained, moderately deep with moderate to moderately slow permeability.	
10. Effect of plant community composition (relative proportion of different functional groups) & spatial distribution on infiltration & runoff: Grasses and forbs account for 93% of the annual herbaceous production for this site and make up 20-30% of the site composition. Infiltration is best with low intensity rainfall events. Runoff can be moderate during high intensity storms and accumulative rainfall events.	
11. Prescence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site): None	
12. Functional/Structural Groups (list in order of descending dominance by above-ground weight using symbols: indicate much greater than (>>) , greater than (>) , and equal to (=) : Warm Season stolon grasses=Cool Season bunch grasses>Warm Season bunch grasses>Shrubs(Winterfat, Fourwing saltbush)	
13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence) : Most of the perennial grasses, forbs and shrubs are long lived. Extended drought periods tend to cause high mortality rates in the grass species and some forbs. Shrub mortality can occur with severe, multiple year droughts.	
14. Average percent litter cover (15-20 %) and depth (0.75 inches). Percent litter and depth will increase with multiple, above average rainfall years.	
15. Expected annual production (this is TOTAL above-ground production, not just forage production): 400 lbs/ac in low precip years, 950 lbs/ac in average precip years, 1500 lbs/ac in above average years. Grass/grasslikes make up 85% of the total annual production.	
16. Potential invasive (including noxious) species (native and non-native). List species which characterize degraded states and which, after a threshold is crossed, "can, and often do , continue to increase regardless of the management of the site and may eventually dominate the site": African Rue has the potential to invade this site after mechanical soil disturbances. Juniper and Cholla species can also invade this site when extended periods of drought and overgrazing by livestock.	
17. Perennial plant reproductive capability : Weather related and natural disease can result in reduced reproductive capabilities. If tree/shrub components dominate the site it can reduce reproductive capabilities of the native grasses and forbs.	

Photograph (s)

MLRA   :   70   Date :
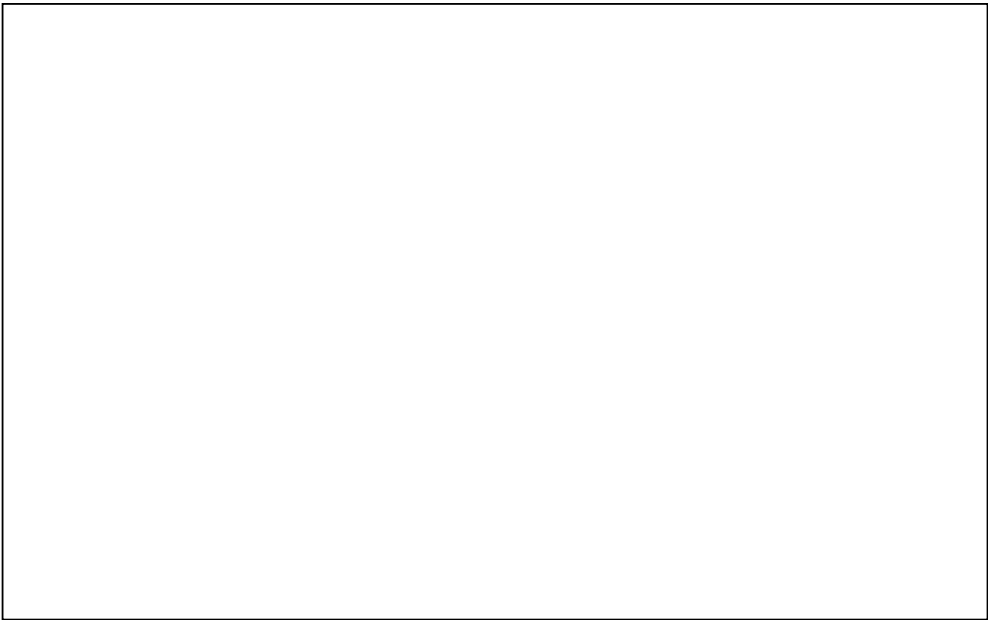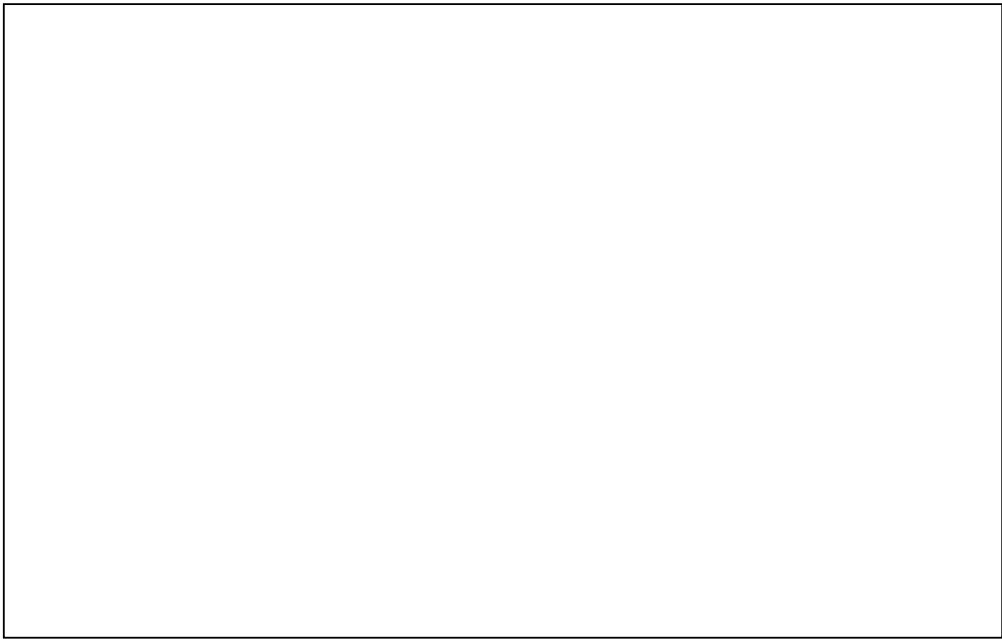
Ecological Site :   Limy CP-3

Photo # 1

Comments :

Photo # 2

Comments :

Appendix 4.

Functional / Structural Groups Worksheet

State   NM   **Office**   Carrizozo   **Ecological Site**   Limy CP-3

Observers   Don Ashby Jr., Bob Moorhead, Richard Spencer, Tim Henry, Ty Ca   **Date**   5/26/06

Functional / Structural Groups			Species List for Functional / Structural Groups
Name	Potential [1]	Actual [2]	Plant Names
Warm Season stolon grasses	D		Black grama,
Cool Season bunch grasses	D		NM Feathergrass, Needleandthread, Western Wheat
Warm Season bunch grasses	D		Side Oats, Blue & Hairy grama, Bluestems, Dropseeds,
Warm Season rhizome grasses	S		Galleta,
Shrubs	M		Winterfat, Fourwing saltbush, Rabbitbrush, Broomsnake weed
Biological Crust [3]			

Indicate whether each "structural/functional group" is a Dominant (D) (roughly 40-100% composition), a **Sub-dominant (S)** (roughly 10-40%) composition) a **Minor Component (M)** (roughly 2-5% composition), or a **Trace Component (T)** (<2% composition) based on weight or cover composition in the area of interest (e.g., "Actual [2] column) relative to the "Potential [2] column derived from information found in the ecological site/description and/or at the ecological reference area.

Biological Crust [3] dominance is evaluated solely on **cover** not composition by weight